

**MINISTRY OF FEDERAL TERRITORIES**  
**KUALA LUMPUR CITY HALL**  
**KUALA LUMPUR FLOOD MITIGATION MANAGEMENT**

---

**Main Points**

**What we  
examined?**

- Floods in Malaysia are categorised as monsoon, flash and tidal floods. Monsoon floods occur due to a high and continuous rainfall intensity of more than 6 hours. Flash floods occur due to excessive and localized rainfall intensity within less than 3 hours. Flash floods can trigger a sudden increase and decrease in water within less than 6 hours. Tidal floods occur due to sea-level rise during high tides and higher level of sea water than the level of water in the river systems.
- The Kuala Lumpur City Hall (DBKL) has developed Strategy Number 2 under Thrust 1, under Kuala Lumpur City Hall Strategic Plan 2010-2020 for rainwater management and flood mitigation by establishing short-term, medium-term and long-term action plans.
- Flood management by the DBKL involves flood mitigation projects and maintenance works. The implementation of the flood mitigation projects was based on the Kuala Lumpur City Rainwater Management Drainage System Master Plan (Master Plan) and the flash flood hotspots.
- The Master Plan which was designed by consultant 327055-V in 2017 proposed 104 flood mitigation plans with 25 catchment areas. The flash flood hotspots were identified by DBKL and as of March 2022, 171 areas were identified and recorded as flash flood hotspot areas.
- Between 2016 to March 2022, six projects under Master Plan and 17 projects under the flash flood hotspot have been implemented by DBKL.
- DBKL is responsible for managing and maintaining three main rivers, seven large rivers, 19 small rivers, 25 flood and recreational reservoir ponds, nine underground flood reservoirs, 326.63km of main drainages and 32 flood control pump systems in Kuala Lumpur.

- The Audit covered two main areas, namely programme performance and programme management for the period of 2016 to March 2022. The programme performance was assessed based on two key areas; the performance of output and outcome.
- The output evaluates the implementation of flood mitigation projects according to the Master Plan prepared by consultants and flash flood hotspots. The outcome evaluates whether the flood mitigation projects have effectively reduced or mitigated floods risk in Kuala Lumpur.
- The evaluation of programme management consisted of six elements, namely financial performance, implementation of DBKL strategic plan, procurement management, contract administration, maintenance of assets and inventory of flood mitigation programmes as well as flood reservoirs and recreation ponds.

#### **Why is it important to Audit?**

- To assess the extent to which the effectiveness of flood mitigation management by DBKL can overcome or reduce the occurrence of floods in Kuala Lumpur.

#### **What we found?**

- The Audit concluded that Kuala Lumpur's flood mitigation management has not yet achieved its objectives. DBKL has not fully implemented the proposed short-term flood mitigation measures (2018-2022) under the Master Plan, causing the problem of flash floods to remain unresolved. In addition, flash floods keep recurring even after the implementation of flood mitigation projects.
- Furthermore, weaknesses in aspects of programme management that need to be given attention are as follows:
  - Three flood mitigation projects amounting to RM27.68 million did not comply with the procurement principles as stated in the regulations.
  - Variation Orders amounting to RM192,553.90 were approved after the contracts have expired.
  - Extension of time were approved after the expiry of the contracts.
  - Records of assets or infrastructure of rivers and flood reservoirs were incomplete and not up to date.

- There is no evidence to suggest the maintenance work was monitored.
- The components and configurations of nine flood reservoirs and recreation ponds are defective.

**What do we recommend?**

- To overcome the weaknesses highlighted and to ensure that no recurrence in the future, it is recommended that DBKL take the following actions:
  - Implement flood mitigation projects in a balanced and consistent manner by taking into account the consultants' proposals and the requirements of hotspot projects, so that the implementation of flood mitigation programmes are more comprehensive and holistic.
  - Conduct an outcome evaluation of the mitigation programme base on the DBKL Standard Operating Procedure in terms of its effectiveness in dealing with floods.
  - Review the components and configurations of flood reservoirs and recreation ponds owned by DBKL and carry out scheduled maintenance works to ensure that the flood reservoirs and recreation ponds are functioning optimally.
  - Maintain timely records of assets or infrastructure of rivers and flood reservoirs and recreation ponds as well as improve on-site monitoring methods for project supervision and project maintenance.